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Application Number

08-509359

Filed

July 31, 1995

Paper No. 476

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US005986054A

**United States Patent** [19]**St. George-Hyslop et al.**[11] **Patent Number:** **5,986,054**[45] **Date of Patent:** **Nov. 16, 1999**[54] **GENETIC SEQUENCES AND PROTEINS  
RELATED TO ALZHEIMER'S DISEASE**[75] **Inventors:** Peter H. St. George-Hyslop; Johanna M. Rommens; Paul E. Fraser, all of Toronto, Canada[73] **Assignees:** The Hospital for Sick Children, HSC Research and Development Limited Partnership; The Governing Council of the University of Toronto, both of Canada[21] **Appl. No.:** 08/592,541[22] **Filed:** Jan. 26, 1996**Related U.S. Application Data**

[63] Continuation-in-part of application No. 08/509,359, Jul. 31, 1995, which is a continuation-in-part of application No. 08/496,841, Jun. 28, 1995, which is a continuation-in-part of application No. 08/431,048, Apr. 28, 1995.

[51] **Int. Cl.<sup>5</sup>** ..... C07K 14/00; C12P 21/06[52] **U.S. Cl.** ..... 530/350; 435/69.1[58] **Field of Search** ..... 530/350; 435/69.1[56] **References Cited****U.S. PATENT DOCUMENTS**

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(List continued on next page.)

**Primary Examiner**—Karen Carlson**Attorney, Agent, or Firm**—Lerner, David, Littenberg, Krumholz & Mentlik[57] **ABSTRACT**

The present invention describes the identification, isolation and cloning of two human presenilin genes, PS-1 and PS-2, mutations in which lead to Familial Alzheimer's Disease. Also identified are presenilin homologue genes in mice, *C. elegans* and *D. melanogaster*. Transcripts and products of these genes are useful in detecting and diagnosing Alzheimer's disease, developing therapeutics for treatment of Alzheimer's disease, as well as the isolation and manufacture of the protein and the constructions of transgenic animals expressing the mutant genes.

**29 Claims, 12 Drawing Sheets**